Chapter 5

The Command and Control System

Commanders cannot exercise command and control (C2) alone except in the simplest and smallest organizations. Even at the lowest levels, commanders need support to exercise C2 effectively. At every level, the commander's C2 system provides that support. The C2 system is not only equipment; it is all the resources used to support C2. The art of establishing the C2 system lies in allocating enough resources to support C2 while simultaneously maintaining the effectiveness of other battlefield operating systems. The C2 system must not waste resources through unnecessary duplication, although some redundancy is necessary for robustness. The C2 system supports the commander's decisionmaking disseminates the commander's decisions to subordinate commanders. This chapter addresses the resources commanders allocate, acquire, or receive to accomplish C2 functions. It includes how commanders organize those resources to exercise C2 and establishes the command post as the doctrinal organization commanders use to exercise C2 during operations.

GENERAL

5-1. The *command and control system* is the arrangement of personnel, information management, procedures, and equipment and facilities essential to the commander to conduct operations. (See figure 5-1, page 5-2.) The command and control (C2) system supports the commander by performing three functions:

CONTENTS

- Creating and maintaining the common operational picture (COP).
- Supporting decisionmaking by improving its speed and accuracy.
- Supporting preparation and communication of execution information.

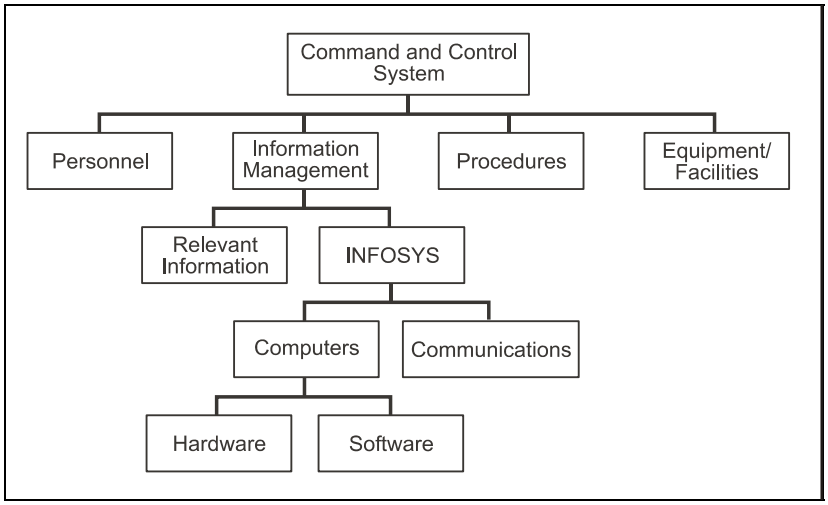

Figure 5-1. Elements of the Command and Control System

5-2. Figure 5-2 shows how the C2 system accomplishes these functions within a command and among higher, lower, and adjacent forces. It also shows the relationships of the information management (IM) activities—collecting, displaying, processing, storing, and disseminating—within the C2 system. The rest of this chapter discusses concerns that affect C2 systems as a whole (location and design considerations) and that affect each component. The IM discussion focuses on information systems (INFOSYS), a major physical component of a modern C2 system. Chapter 3 provides an overview of IM. Chapter 3 and appendix B discuss relevant information (RI).

LOCATION

5-3. Properly locating C2-system elements is important to C2-system effectiveness. Effective communications and security depend on location. Reliable communications—together with administrative support to the commander and staff—are vital to C2-system continuity and effectiveness. Because C2 facilities are high-value targets for enemies, their security is important. Commanders consider the following characteristics when placing the physical C2-system elements:

- **Communications.** Sites must offer good communications to higher, lower, supporting, supported, and adjacent headquarters. They should be protected from enemy offensive information operations (IO) attacks. Access to civil communications and INFOSYS (especially in stability operations and support operations) may be important. At higher echelons, maintaining communications with the host nation, the home station, and other Service and force components are considerations.
- **Security.** C2 facilities must provide security for personnel and equipment. Security is achieved through physical and electronic protection and concealment, and nuclear, biological, and chemical (NBC) defense

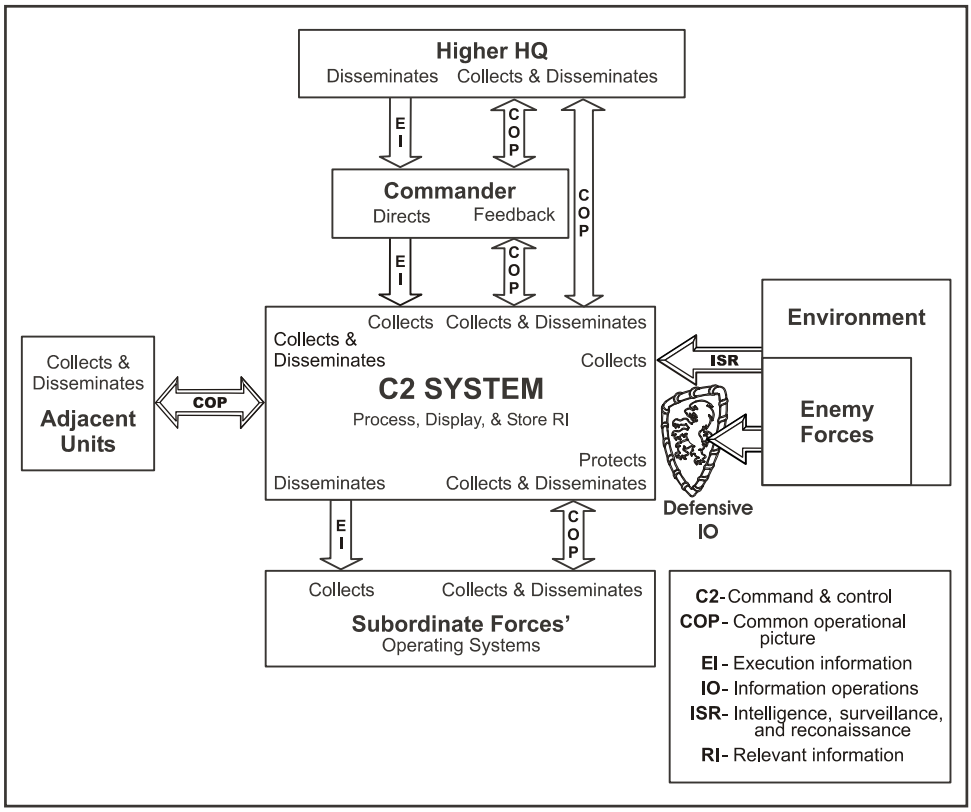

Figure 5-2. Information and the Command and Control System

measures. Dedicated or on-call forces may provide physical security. Commanders balance electronic security considerations against communications requirements.

- **Concealment.** Effective concealment contributes to security. Woods or built-up areas offer the best concealment. Barns, large sheds, or factory complexes all help counter thermal imagery surveillance and provide some basic NBC protection.
- **Accessibility.** Sites should be easily accessible yet not readily detectable by enemy land or aerial reconnaissance. Higher-level headquarters may also require access to ports or fixed-wing airfields.

DESIGN AND ORGANIZATION CONSIDERATIONS

5-4. The details of the C2 system depend on the level and nature of the force and its missions. The commander considers the following when designing and organizing his C2 system:

- **Deployability.** C2 system equipment/facilities must be deployable to overseas theaters. The size and mobility of C2 equipment/facilities affects their deployability. The number of INFOSYS available and their size, weight, and power considerations all affect deployability. C2-system deployability must match that of the force.
- **Continuity of command.** The C2 system must function around the clock in all seasons. Its external communications meet this requirement

primarily by their survivability in the face of ground, air, and other threats.

- **Fusion of command and staff effort.** An effective C2 system integrates and facilitates command and staff efforts. The equipment and internal layout of the facilities, as well as the procedures, should facilitate lateral communication among staff sections and vertical communication between them and the commander.
- **Size.** The commander balances flexibility and survivability when deciding the size of the C2 system. A larger C2 system may provide greater flexibility and survivability through redundancy. This comes at the cost of potentially slower decisionmaking, greater resource investment, and decreased agility, security, deployability, and mobility. A smaller system may limit C2 support, but increase survivability and mobility. Several smaller dispersed facilities may provide equal redundancy and greater survivability than one large facility. The key is to strike the right balance and provide a responsive yet agile organization. Commanders identify necessary elements and eliminate unnecessary ones.
- **Hardness.** Hardness refers to the degree of physical and electronic protection provided to the C2 system, primarily by facilities and equipment. Hardening extends beyond placing personnel and INFOSYS in armored vehicles or protected facilities and providing protection (such as NBC collective protection) to unarmored vehicles and unhardened facilities; it involves a combination of active and passive measures. operations security (OPSEC) measures are key to hardening both the entire C2 system and its individual facilities. (See FM 3-13.) C2-system procedures include standardized OPSEC measures. Dispersed facilities help reduce a force's electromagnetic signature.
- **Modularity.** Modular C2-system design offers flexibility in deploying and employing the C2 system. The commander tailors the C2 system to the mission. Only elements required by the type of operation and situation need deploy. Commanders add elements to accommodate expansion as needed. Larger headquarters occupy smaller facilities. However, when separating C2-system elements, commanders balance the advantages of separation or dispersal against the disadvantages of loss of personal contact and face-to-face planning.
- **Capacity.** A C2 system requires enough IM capacity to manage the RI the force needs to operate effectively. IM includes timely passage of RI to all who need it.
- **Survivability.** A C2 system must be reliable, robust, and resilient. It must be at least as survivable as the force itself. Distributed systems and alternative communication means meet these requirements. The commander organizes and deploys the C2 system so that performance under stress degrades gradually, not catastrophically. The C2 system must cope with communications degradation or failure.
- **Range.** The C2 system requires INFOSYS with enough range to link all headquarters with which the commander communicates, including those outside the force's area of operations (AO). Increasingly, this

means providing a reachback capability to home station. This may require satellite systems.

- **Mobility.** The C2 system must be as mobile as the overall force. Some C2-system elements, especially those that provide range and connectivity to the rest of the force, may need to move more quickly.
- **Control of the electromagnetic spectrum.** A finite part of the electromagnetic spectrum is internationally allocated for military use. During unified actions (see FM 3-0), frequency management is difficult, even in a benign environment. Efficient use of the available and allocated spectrum is critical to coherent communications architecture.
- **Interoperability.** For unified actions, INFOSYS must be compatible and interoperable. Military INFOSYS need to work with civilian INFOSYS, particularly during stability operations and support operations. During these operations, military and civilian INFOSYS might be integrated, for example, with police force INFOSYS.
- **Sustainability.** An effective C2 system integrates and facilitates the close coordination between the commander and combat service support (CSS) planners. Advances in technology enhance achieving CSS situational understanding and provide the links for operational reach and sustainment.

PERSONNEL

5-5. The most important element of the C2 system is people—soldiers who assist commanders and exercise control on their behalf. Personnel dedicated to C2 systems include staffs, deputy commanders, and seconds-in-command. Other C2-system elements exist to serve the personnel and the commander. An effective C2 system accounts for the characteristics and limits of human nature. Simultaneously, it exploits and enhances uniquely human skills.

STAFFS

5-6. Staffs exist to support commanders in making and implementing decisions. Staffs include the most important personnel dedicated to C2 systems. (See appendix C.) They focus on supporting commanders and their subordinate units. Staffs provide RI and analysis, make estimates and recommendations, prepare plans and orders, and monitor execution.

5-7. Commanders give their staffs leadership, direction, and guidance. A staff undertakes all its activities on behalf of the commander. It has no authority by itself; it derives authority from the commander and exercises it only in the commander's name. Commanders use their staffs to exercise C2 when they cannot do so personally.

5-8. The larger a staff, the longer it takes to perform its functions. In the words of GEN William T. Sherman, "A bulky staff implies a division of responsibility, slowness of action and decision, whereas a small staff implies activity and concentration of purpose." Also, larger staffs occupy more space, emit larger electromagnetic signatures, and are less mobile than smaller ones. Consequently, they are more vulnerable to detection and attack. Large staffs with numerous specialists may be more capable of detailed analysis and planning than smaller ones; however, mission command values speed and

agility over precision and certainty. Commanders keep the size of staffs to a minimum to facilitate a high tempo and minimize the space and facilities the headquarters requires.

Functions

5-9. The staff operates the commander's C2 system. All staff organizations and procedures exist to fulfill three functions:

- Support the commander.
- Assist subordinate units.
- Keep subordinate, higher, adjacent, supported, and supporting headquarters informed.

5-10. **Support the Commander.** A staff's most important function is to support and advise the commander throughout the operations process. It does this through IM, which includes each staff section providing control over its field of interest. Commanders structure formal staff processes to provide the two types of information associated with decisionmaking: COP-related information and execution information. All other staff activities are secondary.

5-11. The primary staff products are information and analysis. The COP—and other related information, such as estimates—combined with judgment, leads to situational understanding. Staffs use IM to extract RI from the vast amount of available information and give commanders only what they need to achieve and maintain situational understanding and make decisions. They collect data, including feedback, and process it into RI in the form of the COP and staff running estimates. (Staff running estimates include recommendations based on staff members' expertise in their fields of interest.) These products help commanders identify critical requirements and achieve accurate situational understanding faster than their enemies.

5-12. Staffs also prepare and disseminate execution information. (See paragraph 1-20 and appendix B.) While commanders often personally disseminate some execution information, such as the commander's intent, they rely on their staffs to communicate the majority of it in the form of plans and orders. Staffs must communicate the commander's decisions, and the intent behind them, efficiently and effectively throughout the force to keep it focused on mission accomplishment.

5-13. Finally, each staff section provides control over its field of interest throughout the operations process. While commanders make the key decisions, they are not the only decisionmakers. Trained, trusted staff members, given authority for decisions, and execution based on the commander's intent, free commanders from routine decisions to focus on key aspects of the operation. This practice furthers mission command. Standing operating procedures (SOPs) may establish these responsibilities, or commanders may delegate them for specific situations.

5-14. **Assist Subordinate Units.** While the staff's priority is assisting the commander, it also assists subordinate units. An effective staff enhances subordinate units' ability to train and fight. A proficient staff works in an effective, efficient, and cooperative manner with higher and lower headquarters. It assists subordinate units by providing resources the commander

allocates to them, representing subordinates' concerns to the commander, clarifying orders and directives, and passing RI quickly.

5-15. Effective staffs establish and maintain a high degree of coordination and cooperation with staffs of higher, lower, supporting, supported, and adjacent units. This relationship is based on mutual respect, developed through a conscientious, determined, and helpful approach focused on solving problems. Anything less undermines the confidence and trust required for mission command at all levels. Favorable personal interactions among all members of a staff, and with the staffs of other headquarters, cultivate the desired relationship.

5-16. **Keep Subordinate, Higher, Adjacent, Supported, and Supporting Headquarters Informed.** Staffs pass all RI to other headquarters as soon after determining the information's value to the recipient as possible. The key is relevance, not volume. Masses of data of data are worse than meaningless; they inhibit C2 by distracting staff members from RI. Effective IM identifies the information the commander and each staff section need, and its relative importance. Information should reach recipients based on their need for it. Sending incomplete information sooner is better than sending complete information too late. When forwarding information, senders highlight key information for each recipient and clarify the commander's intent. Senders may pass information directly, include their own analysis, or add context to it. Common, distributed databases can accelerate this function; however, they cannot replace the personal contact that adds context.

5-17. Keeping other headquarters informed contributes to situational understanding at all headquarters. While commanders are responsible for keeping their higher and subordinate commanders informed, staffs supplement their commanders' direct communications by providing clarification through staff and technical channels. They pass routine information required by the other headquarters and answers to the CCIR. Information passed directly from a subordinate staff to a higher commander is limited to information that answers the higher commander's CCIR. All other information goes through staff or technical channels. When authorized, staff members may also inform their counterparts at other headquarters of information being passed between commanders. This helps the higher staff better support its commander.

Staff Relationships

5-18. Staff effectiveness depends in part upon the following relationships:

- Commander and staff.
- Staff integration and teamwork.

5-19. **Commander and Staff.** Commanders are responsible for all their staffs do or fail to do. A commander cannot delegate this responsibility. The final decision, as well as the final responsibility, remains with the commander. When commanders assign a staff member a task, they delegate the authority necessary to accomplish it. Commanders provide guidance, resources, and support. They foster an organizational climate of mutual trust, cooperation, and teamwork.

5-20. Deciding and acting faster than the enemy requires commanders and staffs to focus on anticipating and recognizing battlefield activities. Although commanders set the pace as the principal decisionmakers, their relationship with their staffs must be one of loyalty and respect. It must encourage exercising initiative within the scope of the commander's intent. However, loyalty and respect must not detract from stating hard truths in staff assessments. Before a decision, staff members give honest, independent thoughts and recommendations to their commander so the commander can confirm or restructure the commander's visualization. After an operation begins, staff members provide an accurate COP and separate running estimates (including recommendations) if necessary. Staff members base recommendations on solid analysis and present them to the commander, even if they conflict with the commander's decision. Independent thought and timely actions by staffs are vital to mission command. (See appendix C for staff officer characteristics.)

5-21. Commanders are responsible for training their staffs. While routine staff training may be delegated to the chief of staff (COS), it is the commander who shapes the staff into a cohesive team that works together and knows which information the commander deems important. As an extension of the commander, the staff must know the commander's leadership style, understand the commander's intent, and be able to anticipate the outcome of current operations to develop concepts for follow-on missions.

5-22. **Staff Integration and Teamwork.** Teamwork within a staff and between staffs produces the staff integration essential to synchronized operations. A staff cannot work efficiently without complete cooperation among all branches and sections. A force cannot operate effectively without cooperation among all its headquarters. Commanders, COSs, and executive officers (XOs) all contribute to fostering this climate. They work to achieve it during peacetime and sustain it during operations. However, frequent personnel changes and infrequent opportunities to exercise under operational conditions can undermine an effective command climate. Personnel turbulence, operational pace, and budgetary restrictions can act against achieving staff integration and the teamwork and trust needed for mission command. Overcoming these factors requires attention and solutions by commanders and veteran staff members.

5-23. While all staff sections have clearly defined functional responsibilities (see appendix D), none can operate effectively in isolation. Coordination among them is important. Commanders identify required interaction among staff sections early in the process of organizing the headquarters. They equip and staff each section to work not only with the rest of the headquarters but also with their counterparts in other headquarters.

5-24. Forming ad hoc headquarters, organizations, and units, and integrating additional personnel from multinational partners have characterized many recent operations. Forming a well-integrated staff team able to operate in these situations is critical to mission success. Commanders simulate these situations in training to prepare their staffs for operational conditions. (See paragraphs 4-71–4-86.) A well-integrated staff provides the core into which additional members may be integrated and ad hoc organizations and units formed.

SECONDS IN COMMAND

5-25. At all levels, the second in command is the commander's principal assistant. Seconds in command are deputy commanders, assistant commanders, and XOs. Deputy or assistant commanders are usually assigned as seconds in command for regiments, separate brigades, divisions, and larger organizations. At corps and major-support-command level, there is normally only one deputy or assistant commander. At division level, there are normally two assistant commanders, one for maneuver (ADC-M) or operations (ADC-O), and one for support (ADC-S). At company through brigade level, the XO is the second in command and performs the functions of COS. (See appendix D.)

5-26. The relationship between the deputy or assistant commander and the staff is unique to each command. Staff members do not work for the deputy or assistant commanders unless the commander directs it. Each commander describes the deputy or assistant commander's roles, duties, and relationships with respect to the COS, staff, and subordinate commanders.

5-27. Deputy or assistant commanders normally do not have coordinating or special staffs. When they have specific responsibilities, the headquarters staff assists them as the commander prescribes. Deputy or assistant commanders give orders to the COS (or the staff) within the authority the commander delegates to them. They may go to the COS at any time for staff assistance. If a deputy or assistant commander needs a staff, the commander may form one from headquarters elements or subordinate units, or make a subordinate unit's headquarters available.

5-28. The second in command has important responsibilities in the following circumstances:

- Temporary absence of the commander.
- Succession of command.
- Delegation of authority.
- In joint and multinational forces.

5-29. **Temporary Absence of the Commander.** Seconds in command may assume duties as delegated, either explicitly or by SOP, when the commander is temporarily absent from the command post (CP) or resting. Lack of sleep can impair judgment and creative thinking capabilities. (See FM 6-22.5.) A commander's sleep plan should include delegating authority to the second in command during selected times to give the commander time to sleep. Commanders may also be absent from the command temporarily, either on or off duty. In this case, the second in command may assume command temporarily and make decisions that continue operations in accordance with the commander's intent and policies.

5-30. **Succession of Command.** Commanders may be killed, wounded, medically incapacitated, or, for whatever reason, relieved of command. In these situations, the second in command normally assumes command. At brigade and lower echelons, XOs normally assume command. At higher echelons, deputy or assistant commanders may not be senior to subordinate unit commanders. In this case, the operations order specifies succession of command, and the second in command exercises command until the

designated successor assumes command. However, commanders may designate a second in command who is junior to subordinate commanders as their successor in command. (See AR 600-20 for statutory guidance.)

5-31. Because seconds in command must be able to assume command at any time, they always keep abreast of the situation. Commanders inform their seconds in command of any changes in the commander's visualization or commander's intent. The COS keeps the second in command informed of staff actions. Further, commanders train their seconds in command for command at his level.

5-32. **Delegation of Authority.** Delegating authority to the second in command reduces the burden of commanders' responsibilities and allows them to focus on particular areas or concerns while their seconds in command concentrate on others. Normally, commanders delegate authority to their seconds in command to act in their name for specific fields of interest and responsibility. Doing this decentralizes decisionmaking while allowing the commander to keep overall command.

5-33. **Deputies of Joint and Multinational Forces.** When an Army headquarters serves as the headquarters of a joint or multinational force, appointing a deputy commander from another Service or a multinational partner is often appropriate. These deputy commanders may also exercise command over forces of their Service or nation. They can serve as important advisers to the Army commander. They can further facilitate understanding among participating Service or national forces. In this case, succession of command depends on joint and multinational doctrine, law, or international agreement.

TRAINING

5-34. Training tactically and technically competent leaders and teams is essential to effective C2 systems. The best technology cannot support C2 without trained personnel. Digitization can initially add more training requirements than it eliminates. However, using distance learning can reduce training costs. Training techniques, procedures, and methodologies must evolve and adapt along with doctrine and technology. Commanders ensure they remain efficient, effective, and appropriate in developing and sustaining competent leaders and teams.

INFORMATION MANAGEMENT

5-35. Information management includes RI and INFOSYS. (See figure 5-1, page 5-2.) This section discusses INFOSYS as a part of IM. Chapter 3 discusses IM and RI.

5-36. Advances in information technology are enhancing IM capabilities. First, INFOSYS connectivity allows broadcast dissemination of information. This advance incorporates direct downlink of raw data from multiple sensors to multiple echelons simultaneously. It also allows broadcast of processed information from theater or national production agencies to deployed forces. Deployed units can receive information on a push or pull basis.

5-37. Second, IM involves fusing information from a variety of sources, an INFOSYS capability. Advances in sensors, processors, and communicators provide increased worldwide capabilities for detailed, timely reconnaissance and surveillance. Both military and nonmilitary sources provide information used to produce RI. Open-source information can significantly assist in the production of intelligence or provide a context to the current situation and environment.

INFORMATION SYSTEMS

5-38. *Information systems* are the equipment and facilities that collect, process, store, display, and disseminate information. This includes computers—hardware and software—and communications as well as policies and procedures for their use (FM 3-0). With the integration provided by modern INFOSYS, commanders can achieve higher levels of IM effectiveness and efficiency. INFOSYS directly support C2; however, all battlefield operating systems (BOSs) also depend on responsive INFOSYS. This discussion applies only to INFOSYS devoted to C2 and to information transferred into C2-system INFOSYS from other BOSs. Ultimately, however, effective C2 depends on ensuring that the right person has the needed RI at the right time.

Purpose and Capabilities

5-39. The primary purpose of INFOSYS is to facilitate timely and accurate decisionmaking (including achieving situational understanding) and execution by processing and managing information. With the exception of face-to-face communication, no C2 system can work without INFOSYS. INFOSYS directly affect how commanders communicate and how staffs perform IM. They allow commanders to view and understand their AOs, communicate the commander's intent, and disseminate RI within and beyond their AOs. INFOSYS can simultaneously support current operational deployments and future contingencies. Effective military and nonmilitary INFOSYS help staffs get the right RI to the right place in time for effective decisions and actions. The object of INFOSYS technology is to enhance the performance of people. Once commanders have realized the efficiencies from digitization, the long-term objective will be to decrease the overall number of C2-system personnel required. These efficiencies will be possible when commanders and their soldiers determine how to automate and process the massive amount of information required to conduct modern operations.

5-40. As commanders depend more on INFOSYS for C2, C2 facilities become more attractive targets. INFOSYS can become a weak link if commanders do not take appropriate measures to protect them and ensure their readiness.

5-41. Information sharing, possible with modern INFOSYS, supports shared situational understanding and promotes unity of effort. When used expeditiously, INFOSYS can give commanders a decisive edge over enemies by reducing decision cycles (see appendix A), improving combined arms coordination, and synchronizing the BOSs.

5-42. INFOSYS do more than just collect and process data; properly used, they minimize the time and effort commanders spend assimilating

information and developing situational understanding. INFOSYS capabilities—primarily data processing and analysis tools—allow creation of a truly common COP. In addition, INFOSYS enable the display of COP-related information as meaningful visual images that directly impart knowledge and increase understanding.

5-43. Effective commanders use technology to enable mission command, not to micromanage operations. Equipment that improves the ability to monitor the situation at lower levels increases the temptation, and may provide the means to try, to directly control subordinates' actions. Using INFOSYS this way can undermine mission command. Moreover, such use may fix the higher commander's attention at too low a level. Commanders who focus at too low a level risk losing sight of the overall picture. Consequently, increased INFOSYS capabilities bring the need for increased understanding and discipline. Just because technology allows detailed supervision does not mean commanders should normally use that capability. Effective mission command requires senior commanders to give the on-scene commander freedom to exercise subordinates' initiative.

Roles

5-44. Today's military and nonmilitary INFOSYS combine to give commanders the capability to access information from many sources worldwide. INFOSYS provide the infrastructure that allows commanders to manage information and interface with multiple information sources. They form the architecture that helps commanders and staffs—

- Make decisions.
- Monitor the current situation through the COP.
- Integrate and synchronize decisive, shaping, and sustaining operations.
- Coordinate efforts of subordinate, higher, adjacent, supporting, and supported headquarters.
- Coordinate joint support.
- Link sensors to shooters and update weapon-system targeting parameters.
- Shape the information environment through offensive and defensive IO.

Architecture

5-45. The Army's integrated architecture of advanced INFOSYS maximizes the C2 capabilities of land forces in all environments. The primary national warfighting INFOSYS is the joint Global Command and Control System (GCCS), which interfaces with the Army Battle Command System (ABCS). ABCS is the primary Army warfighting INFOSYS. ABCS—

- Employs a mix of fixed and semifixed installations, and mobile networks.
- Is interoperable with theater and joint INFOSYS.
- Connects directly to GCCS and provides seamless connectivity from platform- and soldier-level to corps.
- Provides connectivity to databases and processes information.

5-46. **Army Battle Command System.** ABCS is a system of BOS INFOSYS that provides commanders with a scalable COP display (one that can be changed in size and configuration). Commanders scale (tailor) the COP display to include only information relevant to the mission, purpose, or task of their echelon. ABCS integrates information from its systems as well as other existing INFOSYS to provide quality information and connectivity with other Services, joint forces, and multinational partners.

5-47. ABCS integrates its components into a coherent, seamless infrastructure that links all echelons from the battalion through strategic levels. ABCS consists of the following 11 systems:

- **Global Command and Control System–Army** (GCCS-A) provides an integrated and automated INFOSYS for Army strategic and theater commanders, corps commanders, and division commanders serving as joint task force commanders or Army service component commanders (ASCCs).
- **Maneuver Control System** (MCS) is the primary tactical-level INFOSYS. It provides the COP, decision aids, and overlay capabilities through interface with other ABCS systems.
- **Force XXI Battle Command Brigade and Below** (FBCB2) provides integrated, on-the-move, and timely RI to tactical combat, combat support (CS), and CSS leaders and soldiers.
- **Combat Service Support Control System** (CSSCS) provides quality automated CSS information (including all classes of supply, field services, maintenance, medical, personnel, and movements) to combat, CS, and CSS commanders; their logistic and special staffs; and to the ASCC.
- **Advanced Field Artillery Tactical Data System** (AFATADS) is a fully integrated fire support INFOSYS. It gives the fire support coordinator automated support for planning, coordinating, controlling, and executing close support, counter-, interdiction, and suppression-of-enemy-air-defenses fires.
- **Air and Missile Defense Planning and Control System** (AMDPCS) integrates air defense fire units, sensors and C2 centers into a single system capable of defeating/denying aerial threats (including unmanned aerial vehicles, helicopters, fixed-wing aircraft, and other platforms). AMDPCS includes AMDWS (the air and missile defense workstation).
- **Tactical Airspace Integration System** (TAIS) is the Army's enabling system for digitization, integration, and automation of Army airspace command and control planning and operations, and for air traffic services. (See FM 3-52.)
- **All Source Analysis System** (ASAS) consists of evolutionary modules that perform system operations management, system security, collection management, intelligence processing and reporting, high-value/high-payoff target processing and nominations, and communications processing and interfacing.
- **Integrated System Control** (ISYSCON) provides integrated technical system control for the integrated ABCS systems.

- **Integrated Meteorological System** (IMETS) provides general weather forecasting, severe weather warnings, and weather effects analysis.
- **Digital Topographic Support System** (DTSS) provides tactical and operational commanders with geospatial information to support terrain and environment parts of commander's visualization.

5-48. **Integration.** Integrating INFOSYS—both vertically and horizontally—facilitates tactical and operational success in joint and multinational operations. Global connectivity is essential to link strategic, operational, and tactical aspects of IM, and to project forces worldwide. The command's command, control, communications, and computers operations (C4 ops) officer (the G-6 [S-6]; see appendix D) integrates nonmilitary equipment and software. Planners ensure that deployed INFOSYS implement open, nonproprietary, commonly accepted standards and protocols to interface with nonmilitary systems. Of the ABCS systems, GCCS-A, MCS, and FBCB2 are integrating systems.

5-49. **Computers.** Computers process COP-related information, support decisionmaking, and disseminate execution information. Computers consist of hardware and software. The widespread use of computers brings two dangers: one is overreliance on technology; the other is not using technological capabilities. Effective IM balances maximum use of computer capabilities with their integration with other C2-system components.

5-50. Modern computers provide new capabilities to support military decisionmaking. They can give commanders higher quality data, collected both vertically and horizontally, faster. Additionally, the number of options—branches, and sequels—commanders can visualize increases in quality, quantity, and depth. This capability can lead to a situation in which friendly commanders regularly can expect to have more and better options for anticipated or unanticipated situations than the enemy. With computers performing many activities done manually in analog CPs, commanders and staffs can shift their time and mental energy to the higher-order thinking skills of transforming information into knowledge and understanding. Having a clear, thorough, and accurate situational understanding allows commanders to visualize likely future states and develop options to shape them rather than react to events as they unfold. Properly used, computers provide commanders RI that helps them reduce and manage uncertainty. This situation increases the force's agility and synergy, and contributes to the exercise of subordinates' initiative. It also helps commanders mass effects at decisive points and times, increasing tempo and reducing the cost of victory.

5-51. **Communications.** Communication is the principal interaction between commanders and those who influence or execute their decisions. Communications using modern INFOSYS provide commanders with near real-time information that is adaptable and responsive to their requirements. There are four principal means of communications: personal contact, liaison, document transfer, and data exchange.

5-52. *Personal contact* can be face to face or over INFOSYS. Two common means of personal contact that use INFOSYS are voice communications and video teleconferencing:

- *Face-to-face communication* is the most productive method, but also the most time-consuming. Many commanders prefer to brief subordinates face to face to ensure that subordinates understand the commander's intent and to sort out any problems. Face-to-face meetings are particularly important and effective in fostering trust and mutual understanding during unified actions, especially multinational operations.
- *Voice communications* over INFOSYS (including telephones, combat net radios, trunk communications, and satellite communications) continues to be a principal method of directing. Commanders can transmit and explain the commander's intent best by voice. It is common to all levels of command and is the only communications method that permits the commander to project personal willpower and inspiration at a distance. Voice communications are especially useful during execution, particularly during fast-moving operations that preclude face-to-face contact. Such communications help maintain tempo.
- *Video teleconferencing* is an effective way to communicate intent and commitment. Facial expression and body language convey information. Video teleconferencing extends face-to-face contact between commanders and subordinates electronically. However, it currently requires large bandwidths to convey subtle nuances.

5-53. Commanders use *liaison* during operations and normal daily activity to help facilitate communication between units, preserve freedom of action, and maintain flexibility. (See appendix E.) Liaison officers (LNOs) and liaison parties convey not only information but also its context by interpreting and explaining it. Effective LNOs understand the operational environment. They exercise initiative and know the mind of their commander and the receiving commander. However, liaison may be of limited effectiveness if dispersion overstretches communications or distances preclude traveling. Vertical liaison is normally required between forces of different nations and when a command is cross-attached. Commanders always establish liaison with adjacent units. This liaison is especially important during multinational operations.

5-54. *Document transfer* can take place by courier, postal service, and facsimile ("fax"). Commanders may use a courier when all else fails or when the person conveying the document is an LNO. Commanders may use postal services when time and service are available. Facsimile is flexible and reliable where small documents—such as, notes, sketches, and small overlays—are concerned; however, it is not an efficient means of passing long documents.

5-55. Modern INFOSYS make *data exchange* easier and faster than in the past. Data exchange includes formal record traffic (joint message text), informal record traffic (facsimile and electronic mail), database-to-database transfer, and pos/nav (position/navigation) data. It can complement voice orders by transferring coordinating information and graphic overlays. Data exchange facilitates communication, but there are constraints associated with using it. It is particularly difficult to convey intentions using data exchange. Data exchange is also bandwidth-intensive.

5-56.While all these methods are useful, voice communications and data exchange remain the primary means of passing information. Operationally, face-to-face contacts and exchanging LNOs assure commanders that the commander's intent is correctly understood. Redundant communication methods harden C2 systems by providing alternative channels for passing information.

5-57. Fixed-message formats help standardize information passed using all four communications means. Formatted messages define the contents closely and minimize the use of free text. Both the sending and receiving systems can process such messages automatically. Currently FM 101-5-2 provides a set of standard message formats. Not all formats in FM 101-5-2 apply to all Army organizations; however, units should incorporate those that do apply to them into their SOPs.

5-58. Friendly and enemy IO affect communications. Close coordination among all staff sections is necessary to reduce these effects. This includes the determining the impact of imposing a restrictive emission control (EMCON) state to support military deception operations or OPSEC. Defensive IO should always be prominent during planning. (See FM 3-13.)

INFOSYS AND INFORMATION MANAGEMENT ACTIVITIES

5-59. INFOSYS are critical to the effective functioning of IM activities. (See chapter 3). This section discusses INFOSYS contributions to each IM activity.

5-60. Currently, staff members who focus on the friendly and enemy military situation typically perform IM activities. Specific IM personnel and specially trained C2-system personnel perform the dynamic oversight necessary to meet commanders' RI requirements. As technical capabilities improve, different echelons can combine them with new procedures to obtain resources through intelligence reach and CSS reach operations. These operations involve obtaining physical and information resources from organizations that have them, regardless of their location.

Collect

5-61. INFOSYS collect information primarily by exploiting the information environment, intelligence, surveillance, and reconnaissance (ISR) operations, and reports and messages from friendly forces. ISR assets collect information about the enemy and environment. However, ISR is part of the intelligence BOS, not the C2 BOS. While some ISR assets are INFOSYS, they support developing intelligence rather than exercising C2.

5-62. Modern INFOSYS give commanders access to information available through the Internet and joint and multinational sources. They allow the C2 system to monitor more sources over a larger area for a longer time. The improved processing capabilities of modern INFOSYS increase the capacity and speed of collection. This increases the timeliness and accuracy of the COP. The versatility of many INFOSYS lets commanders focus collection on specific RI and shift collection efforts as priorities change.

Process

5-63. INFOSYS automate the mechanical aspects and routine functions of processing that machines do more efficiently than people. This capability frees soldiers to concentrate on higher-level tasks (analyzing and evaluating) requiring human cognition and judgment. Automation has made great advances in information processing, but humans remain the most effective means of determining relevance and fusing information. Technology may help in these uniquely human activities, but cannot replace humans.

5-64. Properly used, INFOSYS minimize manual input of data into the COP in two ways. First, as much data as possible should enter the system directly, through sensors. Second, data should be entered only once, at its origin. Shared databases should then make it available electronically to all headquarters. INFOSYS automation of processing can speed and improve the frequency and quality of staff running estimates.

5-65. INFOSYS provide decision aids and functionalities that leverage data and information to provide expanded capabilities to support decisionmaking throughout the operations process. During planning, INFOSYS contribute to the COP that underlies situational understanding. Planning and rehearsal tools provide improved resolution, precision, and accuracy that support commander's visualization. During mission analysis, INFOSYS provide the status of available assets. They facilitate situational understanding and provide tools to assist in COA development, analysis, and comparison. INFOSYS enable commanders, staffs, and subordinates to plan collaboratively and allow more time to prepare. Following the commander's decision, INFOSYS help the staff produce and transmit the order.

5-66. During preparation, INFOSYS allow commanders and staffs to quickly revise and refine the plan based on new information. Staffs can perform more coordination and liaison electronically through INFOSYS. Information developed during war-gaming and stored and disseminated by INFOSYS can contribute to a higher quality rehearsal. INFOSYS allow units to crosswalk their orders electronically rather than manually. They also provide timely information on the progress of task organizing, movements, preoperations checks and inspections, and logistic preparations.

5-67. During execution, INFOSYS provide real-time information to support assessments of variances between expectations during planning and outcomes during execution, analyze their positive or negative significance, and propose possible actions to resolve or exploit the situation. INFOSYS support development and analysis of decisions for keeping operations on track or exploiting opportunities. They allow resynchronization of actions and effects in accord with any adjustments. This capability for rapid resynchronization reduces one impediment to changing a COA during execution—the risk of failure or defeat from loss of synchronization.

Display

5-68. Effective INFOSYS present information in the form required or desired by commanders. Modern INFOSYS provide new capabilities for displaying information. These include imagery; video; color graphics; and digital overlays, mapping, and database technology. INFOSYS allow displays to be

scaled to mission needs, commanders' requirements, and echelon. These displays are updated dynamically and automatically to highlight variances between the plan and its execution. They allow commanders to immediately recognize key elements of the situation—opportunities, threats, and gaps in information—and the relationships among them. Commanders can then assess the implications and act to respond.

Store

5-69. INFOSYS storage capabilities include hardware and software for entering data into databases and retrieving it as needed. These databases are no longer located in one place or on one machine. Modern INFOSYS software allows data on multiple machines to combine into one shared, distributed database. They allow user-scalable profiles and search engines to combine information from multiple databases to answer the commander's and organization's information needs.

Disseminate

5-70. Modern INFOSYS can quickly disseminate information throughout and beyond the AO. While this capability includes communications, it is also embedded in computer hardware and software. For example, INFOSYS now entering the force are capable of database-to-database information transfers. This type of transfer is inherently flexible. It provides the capacity to manage large amounts of information and disseminate it throughout the force. INFOSYS enable dissemination through communications that—

- Digitize, compress, and broadcast multimedia information using increased bandwidth, high-efficiency transport systems.
- Encrypt and provide multilevel information security.
- Manage information networks with "smart" software that dynamically allocates throughput capacity on demand and then routes and disseminates information.

5-71. The Army also relies on some nonmilitary INFOSYS not under its control to disseminate information. These means include—

- American and host-nation public-service networks and postal and telegraph systems.
- Commercial communication satellite systems.
- Commercial global positioning system (GPS) receivers.
- Commercially developed software applications.
- Commercial international news media.
- Public-access databases and electronic bulletin boards.

5-72. These nonmilitary INFOSYS offer an alternative to military means, but only after carefully assessing the security risks. Using nonmilitary INFOSYS may also reduce the requirement for deployed military INFOSYS. Using a nonmilitary system allows planners to compensate for system shortages and meet the IR surge in the early deployment stages.

PROCEDURES

I will only invite your attention to the fact that a necessary preliminary for the musician is a painstaking practice of scales before he reaches the point of making music. Exact forms for orders and annexes, road spaces, systems of abbreviations, symbols for troop units, headquarters, dumps, etc., frontages, formations for attack and defense—estimates of the situation, and a multitude of similar matters of technique, are to the officer what scales and similar exercises are to the musician. Exactitude is required in each exercise until the correct methods become automatic. That is the sort of training you are now undergoing. Later you will be in a position to add or subtract, to amend, or even to depart rather completely from the methods you have learnt—but not until you have thoroughly mastered the elementary technique.

General of the Army George C. Marshall

5-73. *Procedures* are standard and detailed steps that describe how to perform tasks (FM 3-90). A procedure begins with an event and results in a product, which may be the initiating event for another procedure. There are two levels of procedure within C2 systems: doctrinal procedures and standing operating procedures.

5-74. Procedures can increase organizational competence, for example, by improving a staff's efficiency or by increasing the tempo. Procedures can be especially useful in improving the coordination of soldiers who must cooperate to accomplish repetitive tasks, such as the internal functioning of a CP. Using standardized procedures can mitigate the difficult characteristics of land operations discussed in chapter 1. For example, effective procedures can reduce the chance of the COP being inaccurate or misinterpreted at lower levels. However, procedures can also have the opposite effect. Applied blindly to the wrong tasks or the wrong situations, they can lead to ineffective, even counterproductive, performance.

5-75. Procedures apply only to rote or mechanical tasks. They require thought but little judgment, except in deciding which procedure fits the task. Procedures free human analysis and judgment for tasks only humans can perform. Procedures are not rules to follow automatically; commanders and staffs use, modify, or discard them, as the situation requires. Procedures form the basis for automation in INFOSYS but present a challenge: automation must not drive a C2 system. The commander drives the C2 system, and it must remain flexible enough to respond to changes the commander directs.

5-76. C2 procedures are designed for simplicity and speed: They should be simple enough to perform quickly and smoothly under conditions of extreme stress. They should be efficient enough to increase tempo. Streamlined staff-planning sequences are preferable to deliberate, elaborate ones. Procedures should be compressible when time is short—which occurs frequently during operations. As German GEN Hermann Balck said to his staff in World War II, "Don't work hard, work fast."

5-77. Commanders establish procedures to streamline operations and help integrate new soldiers and attachments. Usually spelled out in unit SOPs,

procedures also help commanders make decisions faster by providing RI in standard, easy-to-understand formats. Procedures describe routine actions, thus eliminating repetitive decisions, such as, where to put people in a CP, how to set up a CP, and march formations.

5-78. Procedures facilitate continuity of operations when leaders become unable to perform their duties. Subordinates can step in and use procedures to continue to operate. When soldiers are tired or stressed, their decision-making capability is first to deteriorate. SOPs help individuals and units continue to accomplish many tasks by routine.

5-79. Procedures do not cover every possible situation. It is impossible to think of all activities that require procedures or to include them in doctrine and SOPs. Situations requiring systematic activity to resolve do arise. Commanders then determine whether the probability or effect of a recurrence warrants developing or improving a procedure.

DOCTRINAL PROCEDURES

5-80. While some Army doctrine may be prescriptive and its use mandatory, it normally sets basic principles and functions along with approaches and methods for generating combat power. Doctrine establishes guidance on procedures for problem solving and communicates the wisdom and judgment derived from past operations to the field. It constitutes the starting point for developing procedures for specific units, places, and threats. Doctrinal procedures cannot be applied absolutely. Commanders interpret them to fit the situation.

5-81. Doctrinal procedures for exercising C2 exist. The military decision-making process (MDMP) is one such procedure. Other procedures apply throughout the operations process. They are mentioned in chapter 6 and discussed in the appropriate field manuals. Doctrinal procedures provide the basis for more detailed procedures developed in unit SOPs.

UNIT STANDING OPERATING PROCEDURES

5-82. A *standing operating procedure* is a set of instructions covering those features of operations which lend themselves to a definite or standardized procedure without loss of effectiveness. The procedure is applicable unless ordered otherwise (JP 1-02). SOPs detail how to apply doctrine within a specific unit. They may also be adapted in a given location for a given threat. They standardize unit-level techniques and procedures to enhance effectiveness and flexibility. As the name implies, SOPs standardize routine or recurring actions not needing the commander's personal involvement. However, SOPs may also include rare or abnormal events that could cause mission failure. SOPs regulate operations within and among C2-system elements. They allow internal and external elements to communicate with one another based on shared expectations.

5-83. SOPs reduce the number of instructions commanders and staffs need to issue during operations. They provide a common base of understanding for executing routine tasks. Finally, SOPs serve as a starting point for new personnel to learn the command's routine. Units base SOPs on doctrinal

procedures, higher headquarters procedures, the commander's guidance, and experience.

5-84. SOPs cover the majority of routine tasks. They should be easy to understand and learn, and quick to read. A good way to check a procedure is to give it to a junior enlisted soldier and a junior officer and see if they understand and remember it. In general, SOPs apply until commanders change them. SOPs produce the following benefits:

- Simplified, brief combat orders.
- Enhanced mutual understanding and teamwork among commanders, staffs, and soldiers.
- Established synchronized staff drills.
- Established decisionmaking techniques, including under time constraints.

EQUIPMENT AND FACILITIES

5-85. Equipment and facilities include all C2-support equipment other than INFOSYS. They must meet soldiers' physiological needs—shelter, rest, sanitation, food, and water. They must be as mobile as the force and have internal communications, light, and power.

EQUIPMENT

5-86. The C2 system cannot operate without sustainment and maintenance of personnel and equipment. Support may be dedicated to C2-system elements or made available as needed. Examples of equipment needed to sustain a C2 system include transportation, maintenance assets, shelter, medical support, and supplies for soldiers and equipment. At lower tactical levels, equipment that sustains the C2 system also sustains the unit as a whole. However, part of the justification for that equipment is its support of the C2 system. At higher tactical levels, equipment sustaining the C2 system is usually organic to the headquarters unit.

FACILITIES

5-87. **In the context of the command and control system, a *facility* is a structure or location that provides a work environment.** While the command table of organization and equipment (TOE) normally prescribes C2-system facilities, facilities may also include civilian structures and joint platforms (aircraft, ships, or boats). Army C2 facilities are not necessarily restricted to land. The C2 facilities prescribed by TOE for Army forces may vary widely: tentage; armored vehicles; tactical vehicles, vans and trailers; or a combination of these. Facilities serve a number of functions:

- **Protection.** Facilities provide commanders and staffs a protected area (shelter, light discipline, and NBC protection) in which to work. They protect C2 INFOSYS from the environment.
- **Focus.** Facilities serve as a focal point—a place where commanders and staffs can view RI and subordinate commanders can obtain RI. This aspect may diminish in importance with distributed C2 systems and the Tactical Internet.

- **Face-to-face meetings.** Facilities provide a place for face-to-face meetings. These are especially important for press conferences during stability operations and support operations. Video teleconferencing may replace some meetings, but it remains important for commanders to see subordinates and read their body language.
- **Information display.** Facilities display information not only for the commanders and staffs (their primary purpose), but also for public dissemination through the press.

The joint lexicon includes the terms facility and facility substitutes. See the glossary for a discussion.

ORGANIZATION FOR COMMAND AND CONTROL

5-88. Organization is an important C2 tool. How the commander organizes the C2 system can complicate or simplify execution. Organizing effectively requires commanders to know and apply the fundamentals and principles of organization for C2, how to organize the staff, and how to organize for continuous C2. The basic Army C2 organization is the CP.

FUNDAMENTALS OF ORGANIZATION

5-89. Organizational decisions establish the chain of command (command and support relationships) and task organization. They directly affect C2. They can influence where commanders obtain facts, whom they rely on for advice, and how they supervise execution of their decisions. Organizational decisions affect the structure of the flow of recommendations to commanders. In large part, organization establishes formal communication channels and determines how commanders distribute information throughout their forces.

5-90. Organization serves the important function of providing sources of group identity for soldiers assigned to the command. A command operates most effectively when soldiers consider themselves members of one or more groups characterized by high levels of loyalty, cooperation, morale, and commitment.

5-91. Information flows vertically within the chain of command, but organization should not limit its flow to the chain of command. Information also must flow laterally among adjacent, supported, and supporting units. Information flows informally and unofficially—between individuals according to personal relationships—as well as within formal channels. Informal channels provide important redundancy. They are especially important in team building.

Command and Support Relationships

5-92. Establishing clear command and support relationships is fundamental to organizing for all operations. These relationships prescribe clear responsibilities and authorities among subordinate and supporting units. (See FM 3-0, FM 5-0.) Some forces are given command or support relationships that limit the commander's authority to prescribe additional relationships. Knowing the inherent responsibilities of each command and support relationship allows commanders to establish clear responsibilities when organizing their forces.

5-93. Commanders designate command and support relationships within their authority to weight the decisive operation and support the concept of operations. Task organization also helps subordinate and supporting commanders understand their roles in the operation and contribute to achieving the commander's intent. Command and support relationships carry with them varying responsibilities to subordinate units by parent and gaining units. Commanders consider these responsibilities when establishing command and support relationships.

5-94. Contractors are involved in Army operations. Their management and control differs from that of soldiers and Department of the Army civilians. To employ contractors effectively during operations, commanders make provisions for contractor management during planning. (See FM 3-100.21.) The terms and conditions of the contract establish the relationship between the military and the contractor. Commanders exercise management control through supervisors employed by the contractor. Only the contractor can directly supervise contract personnel.

5-95. During joint and multinational operations, command and support relationships may be less well defined and more open to interpretation. In some international organizations, the North Atlantic Treaty Organization (NATO) for example, command and support relationship terms may have different meanings from those under Army doctrine. For example, the NATO definitions of operational control (OPCON) and tactical control (TACON) are different from Army definitions. In addition, other terms for command and support relationships may exist. In such cases, commanders seek clarification from their higher commander, from orders, or from the agreements that established the force (for example, NATO standardization agreements [STANAGs]). Commanders use agreed-upon multinational command and support relationships when controlling multinational forces.

Allocating Resources

5-96. Mission command requires commanders to have authority over or access to all resources required to accomplish the mission. Accordingly, commanders organize resources as well as forces when making organizational decisions. This resource organization may be implicit in the command and support relationships established; however, it may differ partly or completely from them, as in establishing such priorities as fires, work, or sustainment. In any case, the resource organization must not violate unity of command and should support unity of effort. Further, this organization or allocation of resources should have minimum restrictions on their use, permitting subordinates to further reallocate or to employ them as the tactical situation requires.

PRINCIPLES OF ORGANIZATION

5-97. Organization of C2 should aim to create unity of command, reasonable spans of control, cohesive mission teams, and effective information distribution. Organization, both in peace and war, starts with the chain of command.

The Chain of Command

5-98. The chain of command establishes authority and responsibility in an unbroken succession from one commander to another. (See FM 22-100.) The commander at each level responds to orders from a higher commander and, in turn, issues orders to subordinates. In this way, the chain of command fixes responsibility and sources of authority at each level while, at the same time, distributing them broadly throughout the force. Each commander has designated authority and responsibility in a given sphere. Command and support relationships specify the type and degree of authority one commander has over another, and the type and degree of support one commander provides another. However, support relationships do not establish a chain of command. Some command relationships, such as TACON, only affect employment.

5-99. Strict adherence to a clearly defined chain of command is the best practice in all but exceptional circumstances; however, commanders remain flexible. Circumstances might require them to operate temporarily outside their chain of command. The need for timely decisions and actions may require commanders to provide information to or receive information from different levels of command simultaneously rather than sending it sequentially through the normal chain of command. Likewise, a loss of communications with higher headquarters, coupled with established communications with another headquarters, may make temporary subordination to the second headquarters a better command relationship. In this case, the commander or the higher commander with whom he has communications should contact the common superior of both commands to confirm the temporary subordination or to reestablish communications between the parent headquarters and the subordinate unit.

Span of Control

5-100. Organization should ensure reasonable span of control, which refers to the number of subordinates or activities under a single commander. A commander's span of control should not exceed his capability to command effectively. The optimal number of subordinates is situation-dependent. Generally, commanders exercising detailed command—which requires them to monitor the operations of each subordinate closely—have narrower spans of control than those using mission command. The more fluid and fast-changing the situation, the fewer subordinate elements a commander can supervise closely. In such situations, commanders must either receive fewer units or use mission command techniques. Large spans of control require commanders to let subordinates work out the details of execution.

5-101. Although the span of control varies with the situation, commanders can effectively command two to five subordinates. Within this situation-dependent range, a greater number of subordinates allows greater flexibility, and increases options and combinations. However, as the number increases, commanders, at some point, lose the ability to consider each unit individually and begin to think of the units as a single, inflexible mass. At this point, the only way to reintroduce flexibility is to group elements into a smaller number of parts, creating another echelon of command.

5-102. Narrowing the span of control—that is, lessening the number of immediate subordinates—deepens the organization by adding layers of command. The more layers of command in an organization, the longer it takes for information to move up or down. Consequently, the organization becomes slower and less responsive. Conversely, an effort to increase tempo by eliminating echelons of command or "flattening" an organization necessitates widening the span of control. Commanders balance width and depth, so that the C2 organization fits the situation. The aim is to flatten the organization to the extent compatible with reasonable spans of control.

5-103. Modern technology, particularly INFOSYS and IM techniques, may make it appear possible to widen spans of control. However, command is primarily a human function. Technological considerations cannot be the only criterion used to determine spans of control. Modern INFOSYS enable many civilian organizations to flatten their management structures. This allows them to eliminate layers of management within the organizational hierarchy. The danger, fog, and friction of military operations, combined with the need for on-scene leadership at multiple critical points, dictate care when applying this technology to military organizations.

5-104. Traditionally, the effective span of control was limited by the amount of communications traffic commanders could monitor, the ability to disseminate execution information, and the ability of commanders to monitor subordinate unit operations. With digital systems, commanders and staffs can effectively disseminate and receive information from far more sources. However, the number of critical matters commanders and staffs can process or focus on at one time is limited. The nature of military operations is such that most, if not all, subordinate units are often in near-crisis and need the commander's attention, even if only monitoring their performance.

5-105. An effective task organization enables the commander and subordinate commanders to command without information overload. The commander establishes his span of control and organizes the C2 system so as to be able to exercise C2 under all circumstances, including successful attacks on the C2 system.

Unit Integrity

5-106. Mission command requires self-reliant subordinate commands able to act semiautonomously. Forming such task organizations increases each commander's freedom of action and decreases the need for centralized coordination of support. Effective commanders are flexible: they task organize forces to suit the situation. This might include creating nonstandard, temporary teams or task forces. However, commanders reconcile the need for organizational flexibility with the requirement to create implicit understanding and mutual trust. These characteristics result from familiarity and stable working relationships.

5-107. One way to balance these demands is to observe unit integrity when organizing for C2. There are two imperatives for maintaining unit integrity under mission command:

- Task organize forces based on standing headquarters, their assigned forces, and habitually associated slice elements. Where this is not

feasible and ad hoc organizations are formed, allow time for training and establishing functional working relationships and procedures.

- Once a force is task organized and committed, do not change the task organization during operations unless the benefits clearly outweigh the disadvantages. Reorganizations cost time, effort, and tempo. Consider logistic factors. The time required may counter any organizational advantages gained.

Subordinate Commanders

5-108. Commanders direct subordinate commanders, not subordinate units. Subordinate commanders direct their own units. Mission command absolutely depends on subordinate commanders exercising subordinates' initiative within the commander's intent. Commanders who use mission command techniques select and develop subordinates in whom they have confidence and trust. Moreover, developing subordinates includes making them familiar with the commander's style of implementing mission command. Commanders who train subordinates to operate under mission command accept less-than-perfect solutions by their subordinates if they act rapidly and decisively within the commander's intent and keep the commander informed.

5-109. Maintaining a high tempo to retain the initiative requires many simultaneous decisions at each level of command. This requirement favors intelligent delegation, rather than centralization, of decisionmaking and execution authority. There are three reasons for prudently delegating authority to subordinate commanders:

- First, a commander can process only so much information at a time; most can only focus on one issue at a time.
- Second, opportunities for employing subordinate forces in ways other than expected open and close irregularly. While commanders and staffs focus on one decision, other opportunities will not be exploited unless subordinates are delegated authority to act.
- Third, the meaning of new and unexpected information is often not immediately recognized. The relevance of new information degrades rapidly with time, and competent enemies ensure that any signatures they emit are short. Thus, time spent passing information through the C2 system is time enemies have to accomplish their purposes.

5-110. INFOSYS facilitate control functions; however, they do not accommodate command functions as readily, especially in times of high stress and great uncertainty. INFOSYS make it possible to monitor and control more subordinate elements and track and redistribute priorities for a wider array of functions and resources. When decisions need to be made rapidly on less-than-perfect information and subordinate commanders need the positive motivation of a commander's attention, commanders need to have fewer subordinate elements and fewer fields of interest. Much flattening during peacetime is possible because subordinate elements do not need the commander's attention at the same time at the same level of detail. However, during operations, many subordinate commanders and their operations may need the higher commander's attention at the same time. When commanders organize for C2, including establishing their span of control, they keep this fact in mind.

COMMAND POST

5-111. The CP is the basic headquarters organization used to perform C2 during operations. Headquarters have existed throughout military history. Historical documents show that Roman legions had headquarters that included all the elements of what is now called a C2 system. In the nineteenth century, Napoleon recognized that a headquarters that provided the planning and analytic capability for a campaign was too large to use in battle. He exercised battle command through a smaller grouping brought from the larger headquarters, but with communications to it for coordinating and planning. By World War II, Army doctrine divided operational headquarters into two echelons, forward and rear. That doctrine named the forward echelon the CP. Certain principles of organizing the CP today—echelonment, mobility, survivability, and redundancy—already existed in this doctrine.

DEFINITION

5-112. **A *command post* is a unit headquarters where the commander and staff perform their activities.** It is often divided into echelons. CPs are the principal facilities commanders use to control operations. Each facility is a CP, regardless of whether the commander is present. When they deem necessary, commanders personally control the battle from other locations. In all cases, the commander alone exercises command, whether in the CP or elsewhere.

PURPOSE

5-113. CPs are facilities for exercising C2. Commanders organize them flexibly to meet changing situations and requirements of different operations. They help commanders control operations through continuity, planning, coordinating, and synchronizing the BOSs. CPs process and disseminate COP-related and execution information. COP-related information supports commanders' and staffs' situational understanding. Execution information directs actions by subordinate and supporting units. Effective CPs enable commanders to make decisions faster than the enemy. Effective INFOSYS quickly communicate those decisions to subordinates, allowing the force to rapidly execute them and develop a faster tempo than the enemy.

FUNCTIONS

5-114. Most CP functions directly relate to assessing and directing ongoing operations, planning future operations, or supporting the force. CP functions that directly contribute to these tasks include the following:

- Developing and disseminating orders.
- Information management.
- Maintaining staff running estimates.
- Controlling operations.
  - Directing and regulating actions.
  - Performing critical ongoing functions of execution. (See chapter 6.)
- Assessing operations.
- CP administration.
  - Displacing.

- Providing security.
- Organizing for operations.
- Maintaining continuity of operations.

ORGANIZATION

5-115. In addition to the design and organizational considerations, commanders consider the following when organizing their CPs:

- Balance missions, tasks, and resources. Commanders consider what needs to be done, organize the force, and allocate resources to each BOS, including the C2 BOS. They consider their own and their staffs' efficiency and effectiveness when doing this.
- Establish functional responsibilities and authority. Functional grouping of staff sections, or elements of staff sections, promotes efficiency and coordination. When the CP is echeloned, the commander clearly defines the authority of each echelon, usually in SOPs.
- Echelon C2 elements. Doing this makes commanders' actions more effective and efficient. This redundancy enables them to move throughout the AO while exercising C2. Commanders can make their presence felt over a wider area. Echeloning CPs requires good, continuous communications.
- Maintain communications to all nodes during displacements.
- Organize and train CPs in peacetime to do what is required in combat.

CONTINUITY OF COMMAND AND CONTROL

5-116. A commander organizes the C2 system to provide continuity of C2 functions, tasks, and duties. Commanders consider their own functions and duties as well as those of their staffs. Continuity includes duration over time as well as throughout the AO. (See FM 6-22.5.)

5-117. C2 continuity has two requirements: The first is to have a properly designated commander available to command. The second is to organize the C2 system so the commander can exercise that authority continuously. Continuity depends on the location and echelonment of alternate and redundant facilities, on managing time for transitions, and on mitigating the effects of sleep deprivation. Commanders train their units to maintain C2 continuity during fast-paced operations. This training addresses succession of command, transfer of control among facilities, continuous operations, and transitions between different types of operations.

LOCATION AND ECHELONMENT

5-118. A CP may maintain C2 continuity through the related considerations of echelonment and location. Echeloning CP elements places the minimum C2 resources forward, while keeping more elaborate facilities farther from enemy detection and attack. Echeloning adds redundancy to communications within the force and with other forces. Effectively locating C2-system elements increases C2-system survivability by hardening the elements and making them more difficult to find and attack.

TIME MANAGEMENT

5-119. Time management plays an especially important role in C2 continuity. First, it allows continuity in tempo. Effective time management includes anticipating reaction times by friendly and enemy forces, making decisions, and disseminating execution information in enough time for subordinate units to effectively act. It contributes to agility by allowing commanders to seize or maintain the initiative and maintain or increase the tempo. It also prevents forces from prematurely executing decisions that result in excessive, incorrect, or nonoptimal concentrations that may slow the tempo. While these considerations are more relevant to higher tactical levels, whose subordinate units require more time to initiate and complete tasks, low-level commanders also use time management to mass effects in time and space.

5-120. Time management involves planning and organizing the C2 system to operate around the clock for extended periods. This includes organizing personnel for 24-hour operations. C2-system staffing must be able to meet anticipated requirements, provide a "surge" capability for unanticipated requirements, and mitigate the effects of sleep deprivation on personnel, including commanders. (See FM 6-22.5.)

CONCLUSION

5-121. C2 systems and the INFOSYS they contain are in a period of transition. As ABCS systems are fielded, commanders will be able to exercise more effective C2. ABCS will link Army headquarters at all echelons and (when configured with Land Warrior) will link soldiers and major weapon systems directly to their commander's C2 system. Commanders will receive real-time COP-related information from multiple sources and echelons. They will have flexible decisionmaking tools to respond to rapidly changing situations. Commanders will be able to rapidly adjust to the dynamic operational environment, taking advantage of opportunities and responding to threats as they arise. Decisionmaking will change from a sequential, staff-centered, planning-focused process to one that is simultaneous, commander-centered, and execution-focused.

5-122. Digitization will increase the capacity of commanders and staffs to share information. All commanders will have access to a single COP, based on an integrated database, scalable to their echelons and IRs, and available on the move. This COP will provide commanders a horizontal and virtual picture of the AO, including voice, data, graphics, imagery, and video information. This shared COP will facilitate COA development and adjustment. Combat, CS, and CSS commanders at the same echelon will be able to simultaneously share their situational understanding with higher, adjacent, and supporting commanders. Shared situational understanding will facilitate integrating and synchronizing plans. It will provide all commanders with a common basis for their commander's visualization. Combined with the commander's intent, these displays will result in operations better synchronized vertically and horizontally. Together, these developments will make collaborative planning the standard for operations. They will also allow commanders to identify feasible COAs during ongoing operations, lessening the need to prepare multiple branches before execution.

5-123. By design, the commander must integrate the elements of the C2 system to exercise C2. These elements are interrelated: the role and functions of each depends on and influences the others. For example, INFOSYS influence how personnel perform procedures. Procedures, equipment, and personnel influence the design of facilities. The design and location of facilities affect a commander's ability to control the force. Ultimately, effective performance of C2 is more important than how C2 is performed. To execute operations, commanders organize for C2 and provide for its continuity. Exercising C2 is the subject of chapter 6.